



**Supplementary Fig. S1.** The agarose gel electrophoretic pattern of some reported molecular markers for black rot disease. Polymorphic markers: BoGMS0971, BnGMS301, BoESSR291, BoESSR726 and OI10G06; non-polymorphic markers: SSR739, BoESSR145, BoESSR089, BoESSR216, Iso0857\_371bc; cabbage lines: 1, SCNU-C-106; 2, SCNU-C-107; 3, SCNU-C-

3122, 4, SCNU-C-270; 5, SCNU-C-3273; 6, SCNU-C-3305; 7, SCNU-C-3328; 8, SCNU-C-3412; 9, SCNU-C-3414; 10, SCNU-C-3449; 11, SCNU-C-3470; 12, SCNU-C-3631; 13, SCNU-C-3637; 14, SCNU-C-3639; 15, SCNU-C-4059; 16, SCNU-C-4066; 17, SCNU-C-4071; 18, SCNU-C-4072; 19, SCNU-C-4073; 20, SCNU-C-4074; 21, SCNU-C-4085; 22, SCNU-C-4105; 23, SCNU-C-4118; 24, SCNU-C-4161; 25, SCNU-C-4168; 26, SCNU-C-4302; 27, SCNU-C-4320.



## 2. BnGMS301

>SCNU-C-4118 (R line) 215 bp

AATATGCAGCATTCTAGACAAAAAAAAAATAAACCTTTTAAACTGTTATAATAAAACATATTTAATAT  
ATATGACGTATTTTCTGTAATATTATATCAGGAAGATAGTTAATTAGCTAGGTTACAAAATGATATTATA  
ATATATATATCCCCTATATACTAACCCCTAGAGCATTACAACATATTTTCGTAGCCACGTGTCATCAGGAG  
AATGAT

>SCNU-C-4105 (S line) 238 bp

AATATGCAGCATTCTAGACAAAAAAAAACAAACCTTTTAAACTGTTATAATAAAACATATTTAATATAT  
ATGACGTATTTTCTATAATATTATATCAGGAAGATTGTTAATTAGCTAGGTTACAAAATGATATTATAATA  
TATATATATATATATATATAATTATATATATCTCTATATATTAATCATTGAGCATTACGACATATTTTCGTA  
GATATGTGTCATCAGGAGAATGAT

### Sequence alignment

|             |   |     |
|-------------|---|-----|
| SCNU-C-4118 | AATATGCAGCATTCTAGACAAAAAAAAAATAAACCTTTTAAACTGTTATAATAAAACAT   | 60  |
| SCNU-C-4105 | AATATGCAGCATTCTAG--ACAAAAAAAAACAAACCTTTTAAACTGTTATAATAAAACAT  | 58  |
|             | ***** * ***** *****   |     |
| SCNU-C-4118 | ATTTAATATATATGACGTATTTTCTGTAATATTATATCAGGAAGATAGTTAATTAGCTAG  | 120 |
| SCNU-C-4105 | ATTTAATATATATGACGTATTTTCTATAATATTATATCAGGAAGATTGTTAATTAGCTAG  | 118 |
|             | ***** ***** *****   |     |
| SCNU-C-4118 | GTTACAAAATGATATTATAATATATATATCCCCT-----A                      | 155 |
| SCNU-C-4105 | GTTACAAAATGATATTATAATATATATATATATATATATAATTATATATATCTCTA      | 178 |
|             | ***** *   |     |
| SCNU-C-4118 | TATACTAACCCCTAGAGCATTACAACATATTTTCGTAGCCACGTGTCATCAGGAGAATGAT | 215 |
| SCNU-C-4105 | TATATTAATCATTGAGCATTACGACATATTTTCGTAGATATGTGTCATCAGGAGAATGAT  | 238 |
|             | **** * * * ***** ***** * *****                                |     |

### 3. BoESSR291

>SCNU-C-3273 (R line) 114 bp

AAGCTGGGGATGGAGAAGATCGTAGGGCACTGGAACGACGAGACGGCCATTCTCTCTCTTAGTTTC  
TCTCTCTCTCTTAGTTTCTCTCTCTCTAAGGGGTTTCGATTAGGTGC

>SCNU-C-3122 (S line) 93 bp

AAGCTGGGGATGGAGAAGATCGTAGGGCACTGGAACGACGAGACGGCCATTCTCTCTCTCTCTCT  
CTCTCTCTAAGGGGTTTCGGTTAGGTTC

>SCNU-C-3305\_Upper band (S line) 130 bp

AAGCTGGGGATGGAGAAGATCGTAGGGCACTGGAACGACGAGACGGCCATTCTCTCCTTTTCTCTC  
TCCCTCTCTTAGTTTCTCTCTCTCTCTCTTAGTTTCTCTCTCTCTAAGGGGTTTCGATTAGGTGC

#### Sequence alignment

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SCNU-C-3273      AAGCTGGGGATGGAGAAGATCGTAGGGCACTGGAACGACGAGACGGCCATTCTCTCTCTT 60
SCNU-C-3305_Upper  AAGCTGGGGATGGAGAAGATCGTAGGGCACTGGAACGACGAGACGGCCATTCTCTCCTTT 60
SCNU-C-3122      AAGCTGGGGATGGAGAAGATCGTAGGGCACTGGAACGACGAGACGGCCATTCTCTCTTCT 60
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SCNU-C-3273      AGT-----TCTCTCTCTCTCTTAGTTTCTCTCTCTCTAAGGGGTTTC 104
SCNU-C-3305_Upper  TCTCTCTCCTCTCTTAGTTTCTCTCTCTCTCTCTTAGTTTCTCTCTCTAAGGGGTTTC 120
SCNU-C-3122      CTCTCT-CTCTCTC-----AAGGGGTTTC 83
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SCNU-C-3273      GATTAGGTGC      114
SCNU-C-3305_Upper  GATTAGGTGC      130
SCNU-C-3122      GGTTAGGTTC      93
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#### 4. BoESSR726

>SCNU-C-4074 (R line) 238 bp

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CAATGGGTTACGCATGGTTTAAGTACAATAGAAGGGTCTATATATATATATATATATTATATAGTCTCGTA
CACAATGAGGGAATCGATAAGTTAACAAACAAACCGGATGGAAGAGCTAAGTTCAAAGCTGAGCT
GCAACATATAGGAGAGCATGACACTCCAAGCCGAAGTTTGCAAAGCTCAGCTCCAACCTTTGTATTT
CATTTCTGGTCTAGACAATGGCTGTTTCACAAACG
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>SCNU-C-4085 (S line) 228 bp

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CAATGGGTTACGCATGGTTTAAGTACAATAGAAGGGTCTATATATATATATATATATTATATAGTCTCGTA
CACAATGAGGGAATCGATAAGTTAACAAACAAACCGGATGGAAGAGCTGAGCTGCAACATATAGGA
GAGCATGACACTCCAAGCCGAAGTTTGCAAAGCTCAGCTCCAACCTTCGATTTTCATATTTCTGGTC
TAGACAATGGCTGTTTCACAAACG
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#### Sequence alignment

|             |   |     |
|-------------|---|-----|
| SCNU-C-4074 | CAATGGGTTACGCATGGTTTAAGTACAATAGAAGGGTCTATATATATATATATATTAT    | 60  |
| SCNU-C-4085 | CAATGGGTTACGCATGGTTTAAGTACAATAGAAGGGTCTATATATATATATATATTAT    | 60  |
|             | *****   |     |
| SCNU-C-4074 | ATAGTCTCGTACACAATGAGGGAATCGATAAGTTAACAAACAAACCGGATGGAAGAGCTA  | 120 |
| SCNU-C-4085 | ATAGTCTCGTACACAATGAGGGAATCGATAAGTTAACAAACAAACCGGATGGAAGAGC--  | 118 |
|             | *****   |     |
| SCNU-C-4074 | AGTTCAAAGCTGAGCTGCAACATATAGGAGAGCATGACACTCCAAGCCGAAGTTTGCAA   | 180 |
| SCNU-C-4085 | -----TGAGCTGCAACATATAGGAGAGCATGACACTCCAAGCCGAAGTTTGCAA        | 168 |
|             | *****   |     |
| SCNU-C-4074 | AGCTCAGCTCCAACCTTTGTATTTCATTT--CTGGTCTAGACAATGGCTGTTTCACAAACG | 238 |
| SCNU-C-4085 | AGCTCAGCTCCAACCTTCGATTTTCATATTTCTGGTCTAGACAATGGCTGTTTCACAAACG | 228 |
|             | ***** * *****   |     |

